

# CoolMaster Product Line Technical Data

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## Universal Interface Adapter for HVAC Systems





## Attention

1. During the HVAC system automatic operations the CoolMaster Device\* must be disconnected from the system. Examples of the automatic operations are:

- Test
- Reset
- Automatic charge

2. Do not change the original positions of the quadruple dip switch S inside CoolMaster Device when using it with VRV/VRF systems.

\*CoolMaster Device refers to all CoolMaster Product Line including CoolMaster, CoolMasterPro, CoolMasterNet

### WEEE Directive & Product Disposal



At the end of its serviceable life, this product should not be treated as household or general waste. It should be handed over to the applicable collection point for the recycling of electrical and electronic equipment, or returned to the supplier for disposal.



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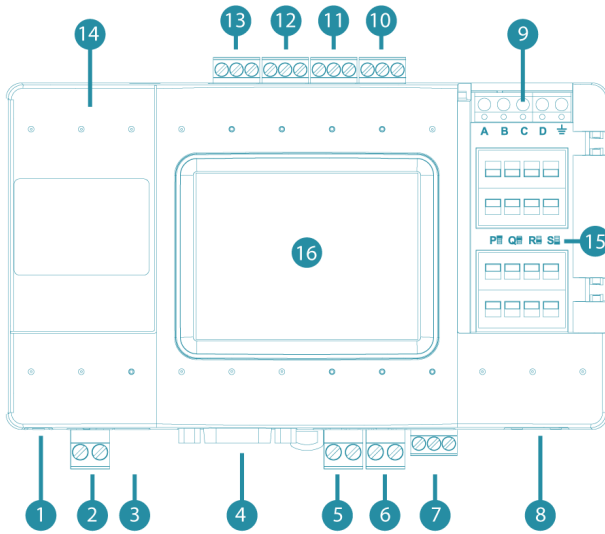
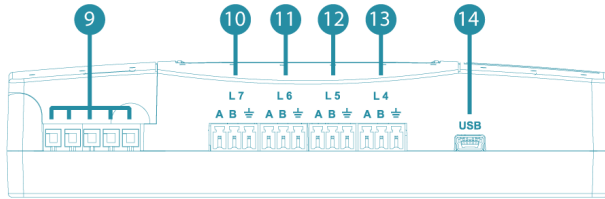


# 1 Features

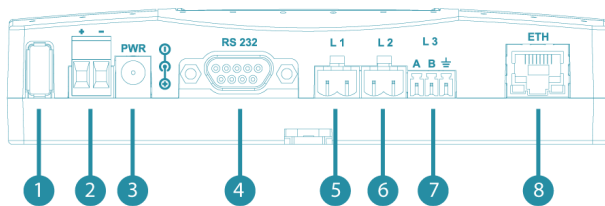
- Seamless integration of HVAC systems with all Home Automation/BMS controllers
- Compatibility with all VRV/VRF HVAC brands e.g. Daikin, Mitsubishi Electric, etc
- Multi-brand simultaneous support
- Interfaces via RS232 (ASCII), RS485 (MODBUS RTU according to EIA/TIA-485 standard), Ethernet (ASCII & MODBUS IP) for all HVAC brands
- Full control & monitoring of HVAC indoor units operation
- Color LCD with Touch Screen for control and system management
- "All On" / "All Off" capability using external signal (e.g. for fire alarm systems)
- Configurable GPIO
- Remote access by Smart Phone, Tablet and PC. Supported by operating systems: Windows, IOS, Android
- Cloud integration
- HVAC systems diagnostics (optional)
- Direct KNX interface (via extension board)



## 2 Layout

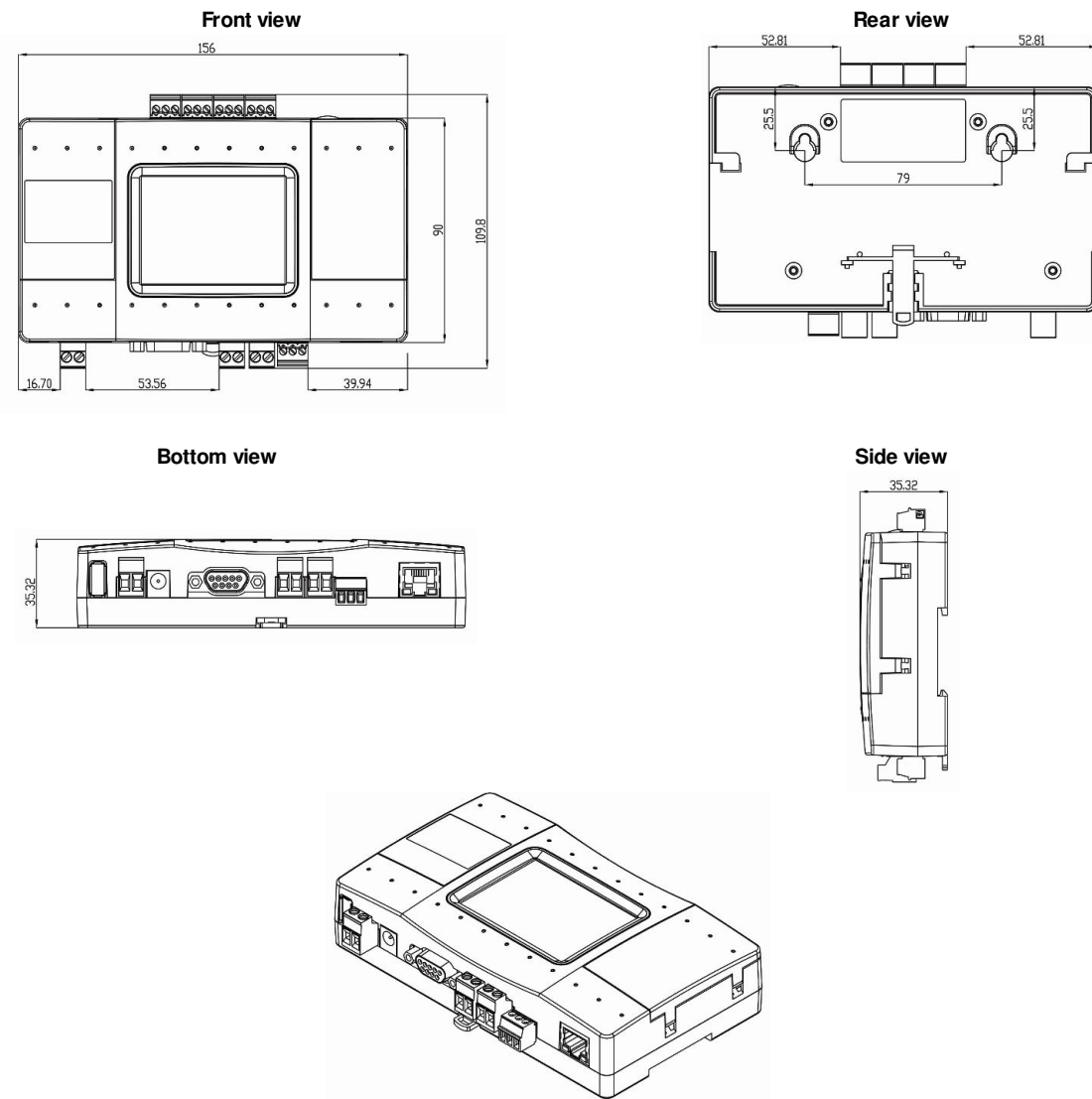


1. USB Host
2. Power
3. Power Plug
4. RS232 Port
5. HVAC Line L1
6. HVAC Line L2
7. HVAC Line L3 or RS485 Port
8. Ethernet Port
9. GPIOs
10. HVAC Line L7
11. HVAC Line L6
12. HVAC Line L5
13. HVAC Line L4
14. USB Device Port
15. DIP Switches P,Q, R,S
16. LCD with Touch Screen





### 3 Physical data



#### Product dimensions and weight:

<b>Dimensions ( HxWxD )</b>	90 x 156 x 35 [mm]	3.54 x 6.14 x 1.33 ["]
<b>Weight</b>	266 [Gram]	0.58 [lbs]

#### Transportation packing dimensions and weight:

<b>Dimensions ( HxWxD )</b>	70x140x280 [mm]	2.75x5.51x11.02 ["]
<b>Weight</b>	800 [Gram]	1.76 [lbs]



## 4 Specifications

Parameter		Data
Power supply	Min load*	5V/175mA (via mini USB); 12V/120mA; 24V/70mA
	Max load**	5V/300mA (via mini USB); 12V/200mA; 24V/120mA
Mounting		DIN rail / wall
Operating conditions	Ambient temperature	-10°C ~ 60°C / 14°F ~ 140°F
	Humidity	0% ~ 96% non-condensing
Storage conditions	Ambient temperature	-20°C ~ 70°C / -4°F ~ 158°F
	Humidity	0 % ~ 98 % non-condensing
Dimensions	HxWxD	156 x 109.8 x 35.32 [mm] / 6.14 x 4.32 x 1.39 ["]
LCD	Size / # of dots / # of colors	2.8" / 240 x 320 / 262K
Input	Touch panel	8 bit encoded analog input
Communication functions	Direct HVAC conenction	Connection to the 2 wired HVAC bus
	MODBUS (A / B)	RS-485 communication line
	Ethernet	100Mbps
	RS-232	DB9, 9600Bps, ASCII
	USB Host	12Mbps
	USB Device	12Mbps
Maximal allowable wiring length (to BMS) over RS232		25 [m] / 82 [ft]
Maximal allowable wiring length (to BMS) over RS485		1000 [m] / 3300 [ft]
Maximal allowable wiring length (to router) over Ethernet		137 [m] / 450 [ft]
Certification		FCC, CE (EN 60335-1, EN 60335-2-40)

\*One HVAC line and Ethernet are connected.

\*\*USB host, Ethernet, HVAC lines 1-7 are connected.

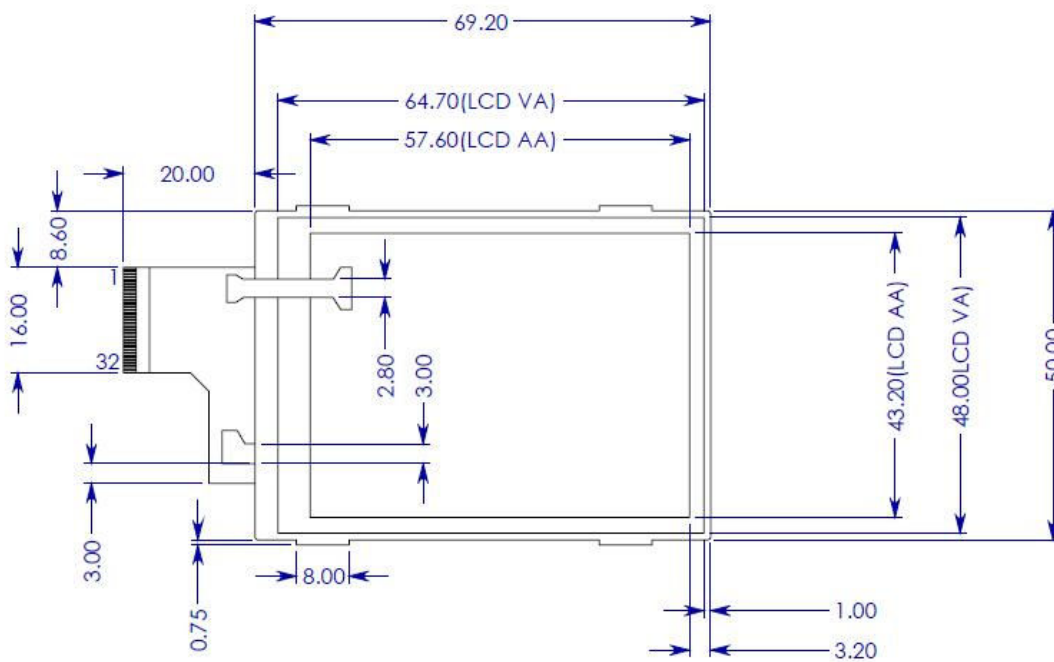


## 5 LCD data

### Technical data:

<b>Display Type</b>	TFT NEGATIVE TRANSMISSIVE
<b>Display Color</b>	262K
<b>Display Format</b>	240x320 (RGB)
<b>Operation Temperature</b>	-10°C ~ 60°C / 14°F ~ 140°F
<b>Storage Temperature</b>	-20°C ~ 70°C / -4°F ~ 158°F
<b>Back light Color</b>	WHITE
<b>Dimension ( H x W )</b>	57.6 x 43.2 [mm] / 2.26 x 1.70 ["]
<b>Touch panel</b>	Resistive

### Dimensions:







## 6 HVAC Interfaces

CoolMaster Product Line is compatible with many different HVAC brands. The table below denotes connection requirements for most popular HVAC brand as well as their specific features and absolute maximums for a number of supported refrigerant systems and indoor units.

HVAC Brand	Interface Line(s)	Interface Name	Connection Terminals	Line Maximum		Service Data
				Systems	IDU	
AUX(AU)	L4,L5,L6,L7		ODU A,B		64	N
Blue Star (BS)	L4,L5,L6,L7		ODU A,B	10	255	N
Chigo (CG)	L4,L5,L6,L7		ODU X,Y,E	16	64	N
Daikin (DK)	L1,L2	DIII-NET	ODU/IDU F1, F2	10	64	Y
Fujitsu (FJ)*	L8	LON	ODU X1,X2	16	128	Y
Gree GMV4 (GR)	L4,L5,L6,L7		ODU Conn	1	16	N
Gree GMV5/6*	L8		ODU G1,G2	32	128	Y
Hitachi (HT)	L1,L2	H-Link	ODU/IDU 1,2	>20	160	Y
Haier (HA)	L1,L2		ODU P,Q	1	64	Y
Kentatsu (KT)	L4,L5,L6,L7		ODU X,Y,E	16	64	N
LG (LG)	L4,L5,L6,L7		ODU CEN.A, CEN.B		128	Y
Mitsubishi Electric (ME)	L1,L2	M-NET	ODU TB7	10	50	Y
Mitsubishi Heavy (MH)	L4,L5,L6,L7	Super Link	ODU/IDU A,B	32	128	N
Midea (MD)	L4,L5,L6,L7		ODU X,Y,E	16	64	Y(V6)
Panasonic (PN)	L1,L2	S-NET	ODU/IDU U1,U2	16	64	N
Samsung (SM)	L4,L5,L6,L7	NASA	ODU R1,R2	15	64	Y
Sanyo (SA)	L1,L2	S-NET	ODU/IDU U1,U2	16	64	N
Toshiba	L1,L2	TCC Link	ODU/IDU U1,U2	40	64	Y
TICA (TC)	L4,L5,L6,L7		ODU A3,B3		64	N

\* - External USB Adapter is required

Maximum number of the indoor units depends also on CoolMaster Device as follows:

- CoolMaster - 32
- CoolMasterPRO - 255
- CoolMasterNet - 255 (May require additional licenses)

### HVAC Lines interoperability

	L1	L2	L4	L5	L6	L7	L8
L1**		✓	✓		✓	✓	✓
L2**	✓		✓	✓		✓	✓
L4	✓	✓		✓	✓	✓	✓
L5**		✓	✓		✓	✓	✓
L6* **	✓		✓	✓		✓	✓
L7*	✓	✓	✓	✓	✓		✓
L8	✓	✓	✓	✓	✓	✓	

### Limitations:

Total number of supported indoors (for all HVAC Lines) can not exceed 255 units

\*When DIP switches P1 and P2 are "ON", lines L6 and L7 cannot be used as separated lines. In this case the polarity on the HVAC cable connected to L7 will be automatically detected.

\*\*Line L2 can not be connected simultaneously with line L6 and line L1 can not be connected simultaneously with line L5.



## 7 GPIO

Parameter	GPIO A	GPIO B	GPIO C	GPIO D
V <sub>IL</sub>	<1V	<1V	<1V	ADC
V <sub>IH</sub>	>2.4V	>2.4V	>2.4V	ADC
V <sub>OUT HI</sub>	3.3V	3.3V	3.3V	3.3V
I <sub>OUT</sub>	20mA	20mA	20mA	20mA
Pull Up	5.6K	5.6K	5.6K	N.A.



## 8 Options

- **KNX**

Extension PCB board, that can be mounted inside the CoolMaster Product Line providing direct connection to the KNX bus.

- **Multiple HVAC Port connection.**

This option allows to activate several HVAC lines simultaneously for increasing the number of supported indoors or supporting different HVAC brands on the same site. It can be enabled on any existing device by activation string.

- **GPIO Functions**

CoolMaster Product Line has 4 digital GPIO, that can be configured for customized applications/functions. By default, GPIO A and B are configured for "All Off" and "All On" functions correspondingly, triggered by external signal.